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| 10/606,496      | 06/26/2003  | Sanjay Gupta         | END920030016        | 5612             |

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Andrew M. Calderon  
Greenblum and Bernstein P.L.C.  
1950 Roland Clarke Place  
Reston, VA 20191

EXAMINER

ALI, MOHAMMAD

| ART UNIT | PAPER NUMBER |
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2166

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/606,496

Applicant(s)

GUPTA, SANJAY

Examiner

Mohammad Ali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This communication is in response to the amendment filed on 5/15/06.

Claims 1-20 are pending in this Office Action.

101 rejections have been withdrawn.

### ***Response to Arguments***

2. After further search and a thorough examination of the present application claims 1-5, 8-15, and 17-20 remains rejected.

Applicants' arguments with respect to claims 1-5, 8-15, and 17-20 have been considered, but they are not deemed to be persuasive.

**First**, Applicant's argue that Mild does not disclose 'creating a master view index and a subordinate view index referencing a subset of said master view index, wherein the subordinate view index is linked to a subset of the master view index'.

In response to applicant's arguments, the Examiner respectfully submits that in particular, Mild teaches this limitation as accessing non-relational data stored in records by means of programs using relational access methods starts with the step of gathering information that describes the non-relational data structure of the record. This information is obtained from source code of the program (e.g., a COBOL copybook or a C header file). After having this non-relational structure of the record, at least one map for each record is generated "created" that maps the non-relational data structure into a relational data structure having columns and rows. The maps are stored in a storage medium, e.g. a repository and allows one to generate views that are based on the map information. Each view includes a subset of the columns defined in

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the map. An interface component is implemented for receiving relational requests and executing them. The interface component accesses the map specified in the relational request, retrieves column information for accessing the data element from the map and generates an optimized non-relational request using column information for accessing the data element. The optimized non-relational request is executed via a non-relational access method (see paras. 0010 and 0011, Mild). Together with the mapping definitions from the mapping repository it splits the record into predefined columns. Then the columns are accessed independently of each other. The requests are optimized for VSAM specifications, for example by automatically selecting the best index key (see para. 0050).

**Second**, Applicant's argue that Mild does not disclose 'creating a subordinate view of the master view having a subordinate view index referencing a subset of said master view index, where the subordinate view defines accessible portions of the data and the subordinate view index is linked to a subset of the master view index and accessing at least a portion of hierarchical data by using the subordinate view index map'.

In response to applicant's arguments, the Examiner respectfully submits that in particular, Mild teaches this limitation as stated above and VSAM record structure EMPPROG.COBOL. The VSAM data has a non-relational structure. The record consists of the data elements, e.g. data empno (=employee number), function, name (=employee name), salary "hierarchical data", age "hierarchical data", dept

(department). Only the application program itself knows the order, length and structure of each data element stored in the record, see para. 0028 and Fig. 2.

**Third,** In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, One of ordinary skill in the art at the time of invention would have recognized the performance gains offered by the caching and view retention policies set forth in Kotidis as applied to the non-relational database structure of Mild. One of ordinary skill in the art at the time of invention would know, as Kotidis puts it, "The ability to participate or react quickly and decisively in today's competitive marketplace is critical to the success of organizations." Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to have combined the caching and aggregate view materialization techniques used by Kotidis into the methods taught by Mild.

*obviousness* is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art. Once such a case is established, it is incumbent upon appellant to go forward with objective evidence of unobviousness. *In re Fielder*, 471 F.2d 640, 176 USPQ 300 (CCPA 1973).

Examiner is entitled to give claim limitations their broadest reasonable interpretation in light of the specification.

#### Interpretation of Claims-Broadest Reasonable Interpretation

During patent examination, the pending claims must be 'given the broadest reasonable interpretation consistent with the specification.' Applicant always has the opportunity to amend the claims during prosecution and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 162 USPQ 541,550-51 (CCPA 1969).

Reference is made to MPEP 2144.01 - Implicit Disclosure

"[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)

Subsequent to an analysis of the claims it was revealed that a number of limitations recited in the claims belong in the prior art and thus encompassed and/or implicitly disclosed in the reference (s) applied and cited. It is logical for the examiner to focus on the limitations that are "crux of the invention" and not involve a lot of energy and time for the things that are not central to the invention, but peripheral. The examiner is aware of the duties to address each and every element of claims, however, it is also important that a person prosecuting a patent application before the Office or an stakeholders of patent granting process make effort to understand the level of one of ordinary skill in the (data processing) art or the level one of skilled in the (data processing) art, as encompassed by the applied and cited references. The

administrative convenience derived from such a cooperation between the attorneys and examiners benefits the Office as well the patentee.

In view of the above, the examiner contends that all limitations as recited in the claims have been addressed in this Action.

For the above reasons, Examiner believed that rejection of the last Office action was proper.

In response to applicant's argument, to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

"Test of obviousness is not whether features of secondary reference may be bodily incorporated into primary reference's structure, nor whether claimed invention is expressly suggested in any one or all of references; rather, test is what combined teachings of references would have suggested to those of ordinary skill in art."

*In re Keller, Terry, and Davies*, 208 USPQ 871 (CCPA 1981).

"Reason, suggestion, or motivation to combine two or more prior art references in single invention may come from references themselves, from knowledge of those skilled in art that certain references or disclosures in references are known to be of interest in particular field, or from nature of problem to be solved;" *Pro-Mold and Tool Co. v. Great Lakes Plastics Inc.* U.S. Court of Appeals Federal Circuit 37 USPQ2d 1626 Decided February 7, 1996 Nos. 95-1171, - 1181

"[q]uestion is whether there is something in prior art as whole to suggest desirability, and thus obviousness, of making combination." Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Company et al. U.S. Court of Appeals Federal Circuit 221 USPQ 481 Decided Mar. 21, 1984 No 83-1178.

There was a typo error about the claims 19 and 20. It should be under 102 rejections.

Hence, Applicants' arguments do not distinguish over the claimed invention over the prior art of records.

In light of the foregoing arguments, the 102/103 rejections are hereby sustained.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 10-14 & 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application Publication US 2001/0018684 A1 (henceforth referred to as Mild).

Claim 1 is anticipated by Mild as follows: **A method of accessing data in a non-relational database, the method comprising the steps of: creating a master view having a master view index referencing the data (¶ 10); creating a subordinate**

**view of the master view having a subordinate view index referencing a subset of said master view index, where the subordinate view defines accessible portions of the data and the subordinate view index is linked to a subset of the master view index (§ 10); and accessing the data via the subordinate view (§ 23).**

Claim 2 is anticipated by Mild as in claim 1, **wherein the creating a master view includes defining at least one of sorted and categorized columns associated with the master view (§ 22).**

Claim 3 is anticipated by Mild as in claim 1, **wherein the creating a subordinate view step includes defining at least one of a collapsed subordinate view and a non-collapsed subordinate view (§ 32).**

Claim 4 is anticipated by Mild as in claim 1, **further comprising automatically managing the subordinate view (§ 29).**

Claim 5 is anticipated by Mild as in claim 1, **wherein the accessing step includes creating an index map which links the accessible data associated with the subordinate view to the master index (§ 10).**

Claim 10 is anticipated by art 1 as in claim 1, **wherein the data includes at least one of categorized non-hierarchical data, hierarchical data, and categorized hierarchical data (§ 10).**

Claim 11 is anticipated by Mild as in claim 1, **wherein the master view has a master index referencing at least a portion of the hierarchical data in the non-relational database (§ 10-11).**

Claim 12 is anticipated by Mild as in claim 1, **wherein the creating a subordinate view step includes creating a plurality of subordinate views associated with one or more master views (§ 10).**

Claim 13 is anticipated by Mild as follows: **A method of enhancing performance when accessing hierarchical data in a non-relational database, the method comprising the steps of: creating at least one subordinate view having a subordinate index referencing a subset of a master index of at least one master view (§ 10, § 23); creating a subordinate view index map associated with the at least one subordinate view when accessing the hierarchical data (§ 22); and accessing the at least a portion of hierarchical data by using the subordinate view index map (§ 23), wherein an amount of data accessed using the at least one subordinate view is less than the amount of data when accessing the at least one master view (§ 22).**

Claim 14 is anticipated by Mild as in claim 13, **wherein the creating at least one subordinate view includes defining at least one of sorted and categorized columns associated with the at least one master view (§ 22).**

Claim 18 is anticipated as in claim 13, **wherein the subordinate view includes at least one of a collapsed view and a non-collapsed view and access via the collapsed view providing less data than access via a non-collapsed view (§ 10).**

Claims 19 & 20 are taught by Mild as applied to claims 1-18 except hierarchical data and Mild teaches as VSAM record structure EMPPROG.COBOL. The VSAM data has a non-relational structure. The record consists of the data elements, e.g. data

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empno (=employee number), function, name (=employee name), salary "hierarchical data", age "hierarchical data", dept (department). Only the application program itself knows the order, length and structure of each data element stored in the record, see para. 0028 and Fig. 2. Thus, claims 19 & 20 are rejected using the same rationale as claims 1-18.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8 and 9, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Mild and *A Case for Dynamic View Management* (henceforth referred to as Kotidis).

Claim 8 is taught by the combination of Mild and Kotidis, **further comprising maintaining historical information including access frequency to the subordinate view** (Kotidis: page 397 bullet statistics).

One of ordinary skill in the art at the time of invention would have recognized the performance gains offered by the caching and view retention policies set forth in Kotidis as applied to the non-relational database structure of Mild. One of ordinary skill in the art at the time of invention would know, as Kotidis puts it, "The ability to participate or

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react quickly and decisively in today's competitive marketplace is critical to the success of organizations." Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to have combined the caching and aggregate view materialization techniques used by Kotidis into the methods taught by Mild.

Claim 9 is taught by the combination of Mild and Kotidis, **wherein the accessing step provides one of a reduction of data transferred to a client in a client-server architecture, a decrease in the amount of data manipulated during the accessing step, a decrease in response time to an access request, an increased performance, and a decrease in index size** (Kotidis: page 391 ¶ 2).

One of ordinary skill in the art at the time of invention would have recognized the performance gains offered by the caching and view retention policies set forth in Kotidis as applied to the non-relational database structure of Mild. One of ordinary skill in the art at the time of invention would know, as Kotidis puts it, "The ability to participate or react quickly and decisively in today's competitive marketplace is critical to the success of organizations." Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to have combined the caching and aggregate view materialization techniques used by Kotidis into the methods taught by Mild.

Claim 15 is taught by the combination of Mild and Kotidis, **further comprising maintaining historical information including access frequency to the subordinate view** (Kotidis: page 397 ¶ 3).

One of ordinary skill in the art at the time of invention would have recognized the performance gains offered by the caching and view retention policies set forth in Kotidis

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as applied to the non-relational database structure of Mild. One of ordinary skill in the art at the time of invention would know, as Kotidis puts it, "The ability to participate or react quickly and decisively in today's competitive marketplace is critical to the success of organizations." Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to have combined the caching and aggregate view materialization techniques used by Kotidis into the methods taught by Mild.

Claim 17 is taught by the combination of Mild and Kotidis, **further including assigning priorities to one of the at least one master view and at least one subordinate view to grade performance** (Kotidis: page 405-406 § 5.4.1 ¶ 1).

One of ordinary skill in the art at the time of invention would have recognized the performance gains offered by the caching and view retention policies set forth in Kotidis as applied to the non-relational database structure of Mild. One of ordinary skill in the art at the time of invention would know, as Kotidis puts it, "The ability to participate or react quickly and decisively in today's competitive marketplace is critical to the success of organizations." Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to have combined the caching and aggregate view materialization techniques used by Kotidis into the methods taught by Mild.

***Allowable Subject Matter***


7. Claims 6, 7 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Contact Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ali whose telephone number is (571) 272-4105. The examiner can normally be reached on Monday-Thursday (7:30 am-6:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain T. Alam can be reached on (571) 272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Mohammad Ali  
Primary Examiner  
Art Unit 2166

MA  
August 4, 2006